Claims

1. An AAV vector characterized in that it carries at least one mutation resulting in a heparin-binding motif of a capsid protein being located within aa positions 470 to 592 showing a reduced or eliminated heparin binding function.

2. The AAV vector of claim 1, wherein said mutation results in an amino acid substitution of the capsid protein at aa position:

(a) arginine 475;
(b) arginine 484;
(c) arginine 487;
(d) lysine 527;
(e) lysine 532;
(f) arginine 585; and/or
(g) arginine 588.

3. The AAV vector of claim 2, wherein said amino acid substitution is a non-conservative amino acid substitution.

4. The AAV vector of claim 3 with the capsid protein being characterized by at least one of the following amino acid substitutions:

(a) R475A;
(b) R484A or R484E;
(c) R487A or R487E;
(d) K527A;
(e) K532A;
(f) R585E; and/or
(g) R588E.

5. The AAV vector of claim 4 with the capsid protein being characterized by the amino acid substitutions R484E and/or 585E.

6. The AAV vector of any one of claims 1 to 5, which is an AAV-2 vector.

7. An AAV particle having a capsid encoded by an AAV vector of any one of claims 1 to 6.

8. A pharmaceutical composition containing an AAV vector of any one of claims 1 to 6 or an AAV particle of claim 7.

9. Use of an AAV vector of any one of claims 1 to 6 or an AAV particle of claim 7 for gene therapy of non-hepatic tissue.

10. The use according to claim 9, wherein said non-hepatic tissue is heart muscle tissue.